

Department of Health
Auxiliary Secretariat of Environmental Health
Public Water Supply Supervision (PWSS) Program

Action Plan for Disasters

Situation	Affected Area	Corrective Activities				Responsibility	Resources													
1. Drinking water source contamination	Urban and rural areas	I- Before the disaster				<ul style="list-style-type: none">Department of Health (DOH) Communication OfficeSecretary of Health	PWSS Program will supply educational material to the DOH Communication Office and the Regional Environmental Offices “ How to obtain drinking water in emergencies” “Recommendations on how to clean water tanks and cisterns” This information should be distributed through Regional Environmental Health Offices.													
		A. Educate the public on how to obtain water potable and how to store the water in case of a disaster through available news media.																		
		1. Public is informed to store al least 14 gallons per person for drink, food preparation an hygienic purposes. This amount is adequate for at least two (2) weeks.																		
		2. There are two (2) general methods by which water can be effectively disinfected, boiling or chemical treatment.																		
		a) Strain water through a clean cloth into a clean containers to remove any sediment or floating matter. Boil the water vigorously, at least three (3) minutes. Allow it to cool. There are several methods to improve the taste: pouring it back and forth from one container to another, allow it stand for a few hours or by adding a small pinch of salt per quarter of water boiled.																		
		b) When boiling is not possible, chemical disinfection should be used. Two common chemicals, chlorine and iodine, can be used in the following proportions:																		
			<table><tr><th>Household Chemical</th><th>Drops per Gallon Without Treatment</th><th>Treated</th><th>Stand Time</th></tr><tr><td>Common Bleach 5.25%</td><td>15</td><td>8</td><td>20 min.</td></tr><tr><td>Tincture of Iodine 2%</td><td>40</td><td>20</td><td>30 min.</td></tr></table>	Household Chemical	Drops per Gallon Without Treatment	Treated	Stand Time	Common Bleach 5.25%	15	8	20 min.	Tincture of Iodine 2%	40	20	30 min.					
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		B. Take preventive measures to reduce injuries and/or contamination of water supplies	<ul style="list-style-type: none"> Puerto Rico Aqueduct and Sewer Authority (PRASA) 	Coordination with other agencies, if necessary.
		C. Coordinate with other agencies such as: Civil Defense, Police Department, National Guard, Natural Resources and Environmental Department, Environmental Quality Board, Aqueduct and Sewer Authority, Electric Power Authority, etc. (Attachment 1).	<ul style="list-style-type: none"> PWSS Program Environmental Secretariat PWSS Regional Coordinator 	PWSS Program Regional Environmental Offices
		D. Coordinate with the Department of Health Laboratory to establish arrangements such as: human resources, equipment and supplies available, samples laboratory capability, etc.	<ul style="list-style-type: none"> Environmental Secretariat 	DOH Laboratories (Central and Regional)
		E. Keep a registry of all personnel with address and emergency telephone numbers. (Attachment 2)	<ul style="list-style-type: none"> PWSS Program 	Distribute to all personnel
		F. Keep adequate stock of field analysis equipment and supplies.	<ul style="list-style-type: none"> Environmental Secretariat PWSS Program 	Each region shall maintain their own inventory.
		II. During the disaster		
		A. Keep inform for Civil Defense or Weather Forecast News through all news media.		
		III. After the disaster		
		A. Immediately establish contact between the PWSS Main Office and Regional Environmental Offices (PWSS Coordinators). Use communication media available (telephone, fax, radio-telephone, etc.) The information requested would be the following: <ol style="list-style-type: none"> Public Water Systems damage report. Human Resources, equipment and supplies necessary to make corrective activities. Shelters inventory Monitoring for residual chlorine, bacteriology and chemical analysis. Other relevant information. 	<ul style="list-style-type: none"> PWSS Director Environmental Health Regional Directors PWSS Regional Coordinators 	DOH has state of the art communication system assign to the Auxiliary Secretariat of Medical Emergencies. Also, PRASA has a similar communication system.
		B. A damage inventory and PWS affected will be prepared in cooperation with the system's owner. A follow up actions must be identified to correct deficiencies.	<ul style="list-style-type: none"> PWSS Regional Engineer Coordinators will be responsible of all coordination with PRASA 	PRASA has to prepare this damage report.
		C. Immediately, after the disaster a sampling will be initiated. Distribution systems should be tested for residual chlorine. As soon as possible, bacteriological analysis will be performed by DOH Laboratory. Bacteriological sampling shall be taken daily in the distribution certified sampling points until the system is in normal operation. Chemical analysis will be performed if necessary. The samples will be collected by the inspectors in coordination with the PWSS coordinators	<ul style="list-style-type: none"> PWSS Regional Coordinators will be responsible of all sampling by the Environmental Health inspectors. 	The Regional Director must assign an inspector for sampling. Sampling equipment shall be available at each Regional Offices.

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		D. All systems (filtration plants, partial plants, unfiltered, wells) will be inspected. Sampling for residual chlorine and bacteriology shall be performed.	<ul style="list-style-type: none"> PWSS Regional Coordinators 	Environmental Health Officers and inspectors may be used.
		E. Evaluate alternative water source in coordination with system's owner. It shall be: industries, water tanks, rivers, lakes, etc.	<ul style="list-style-type: none"> PRASA 	
		F. All shelters will be inspected and monitored for residual chlorine and bacteriology.	<ul style="list-style-type: none"> Environmental Health Regional Directors PWSS Regional Coordinators 	Environmental Health inspectors
		G. In coordination with PRASA, adequate water quantity will be determine. Water distribution priorities shall be: <ul style="list-style-type: none"> 1. Drinking water 2. Sanitary purposes 3. Fire fighting 4. Industrial and commercial uses 	<ul style="list-style-type: none"> PRASA 	PWSS Regional Coordinators in coordination with PRASA.
2. Absence of drinking water	Urban and rural areas Shelters	I- After the disaster A. Drinking water will be provided by water tank trucks or by alternative drinking water source. A Protocol for delivering water in water tank trucks has been established and shall be follow. (Attachment 3)	<ul style="list-style-type: none"> DOH PRASA 	Coordination with other agencies if necessary. Contact local municipalities if necessary. Environmental Health Officers and inspectors.
3. Contamination and absence of water in private water systems	Urban and rural areas	I -After the disaster A. See corrective activities in situation #1.	<ul style="list-style-type: none"> DOH Environmental Health Regional Directors 	All human resources of DOH above mentioned, in coordination with previously listed agencies.
1. Contamination of water supply of bottled water and ice making industries.	Islandwide	I -After the disaster A. Plants and source inspections B. Bacteriology sampling as soon as possible	<ul style="list-style-type: none"> DOH Environmental Health Regional Directors 	Environmental Health inspectors

(Unofficial translation)